

Easy

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Regarding Computer Networking in buildings: 1. A Star topology is the most common configuration for office Local Area Networks (LAN). 2. Fiber optic cables are preferred

A

All of the above

B

2 and 3 only

C

1 and 3 only

D

1 and 2 only

Correct

Correct Answer: D

Full Detailed Explanation

Correct Answer: D - 1 and 2 only

Quick Concept Explanation Modern office/building LANs commonly use switched Ethernet in a star topology. Fiber is favored for high-bandwidth or long backbone links and for immunity to electromagnetic interference. Key relation: Ethernet switch: primarily Layer 2; fiber backbone: high bandwidth and EMI immunity. Exam focus: Distinguish a switch from a hub/repeater in OSI-layer questions. Common trap: A normal Ethernet switch is not principally a Layer-1 device. Statement-wise Verification Statement 1 - Correct. A Star topology is the most common configuration for office Local Area Networks (LAN). Modern office/building LANs commonly use switched Ethernet in a star topology. Statement 2 - Correct. Fiber optic cables are preferred for long-distance building backbones due to their high bandwidth and immunity to EMI. Ethernet switch: primarily Layer 2; fiber backbone: high bandwidth and EMI immunity. Statement 3 - Incorrect. A Switch operates at the Physical layer (Layer 1) of the OSI model. A standard Ethernet switch is primarily a Layer-2 data-link device, although multilayer switches also exist

Core Concept Modern office/building LANs commonly use switched Ethernet in a star topology. Fiber is favored for high-bandwidth or long backbone links and for immunity to electromagnetic interference. A conventional Ethernet switch makes forwarding decisions primarily at OSI Layer 2.